AF/3683

[10191/1975]

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:	Examiner: Robert SICONOLFI
Harald BECK et al.	
For: METHOD AND DEVICE FOR CONTROLLING A WHEEL BRAKE OF A VEHICLE	
Filed: September 27, 2001	Art Unit 3683
Serial No.: 09/965,776	

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11 May 2004

Michelle Carniaux (Reg. No. 36,098)

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF TRANSMITTAL

SIR:

Transmitted herewith for filing in the above-identified patent application, please find an Appeal Brief pursuant to 37 C.F.R. § 1.192(a), in triplicate.

Please charge the Appeal Brief fee of $330.00, and any other fees that may be required in connection with this communication to the deposit account of **Kenyon & Kenyon**, deposit account number **11-0600**.

Appellants hereby request a one-month extension of time for submitting the Appeal Brief. The extended period for submitting the Appeal Brief expires on May 12, 2004. Please charge the $110.00 extension fee and any other fee that may be required to Deposit Account No. 11-0600. A duplicate of this Transmittal is enclosed

Respectfully submitted, Reg. No 36098

Dated: 11 May 2004

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[10191/1975]

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Signature: _____

Michelle Carniaux (Reg. No. 36,098)

APPEAL BRIEF PURSUANT TO 37 C.F.R. § 1.192(a)

S I R:

In the above-identified patent application ("the present application"), the Appellant mailed a Notice of Appeal on February 10, 2004 from the Final Office Action issued by the United States Patent and Trademark Office on October 10, 2003. This Notice of Appeal was received by the Patent Office on February 12, 2004.

In the Final Office Action, claims 1, 3, 5, 7, 8 and 10 were finally rejected. An Advisory Action was mailed on January 7, 2004.

In accordance with 37 C.F.R. § 1.192(a), this Appeal Brief is submitted in triplicate in support of the appeal of the final rejection of claims 1, 3, 5, 7, 8 and

10. For the reasons more fully set forth below, the final rejection of claims 1, 3, 5, 7, 8 and 10 should be reversed.

1. REAL PARTY IN INTEREST

The real party in interest in the present appeal is Robert Bosch GmbH, Stuttgart, Federal Republic of Germany. Robert Bosch GmbH is the assignee of the entire right, title, and interest in the above-identified application.

2. RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences "which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal."

3. STATUS OF CLAIMS

Claims 2, 4, 6 and 9 have been canceled.

Claims 1, 3, 5, 7, 8 and 10 stand finally rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 6,053,584 to Schunck et al.("Schunck").

Claims 1, 3, 5, 7, 8 and 10 also stand finally rejected under 35 U.S.C. § 102(e) as anticipated by U.S. Patent No. 6,332,654 to Yano("Yano").

A copy of the appealed claims is attached hereto in the Appendix.

4. STATUS OF AMENDMENTS

In response to the Final Office Action issued on October 10, 2003, a Request For Reconsideration under 37 C.F.R. § 1.116 was filed on December 4, 2003. No proposed amendments to the claims were presented in the Request For Reconsideration.

5. SUMMARY OF THE INVENTION

The present invention relates to a method and a device for controlling a wheel brake of a vehicle. Specification, page 1, lines 2 to 3.

According to the present invention, when the vehicle is standing still, a braking force may be limited to levels that keep the vehicle, having a certain weight, at a predefined gradient, so that the driver's stipulated intent (input) may be implemented only inasmuch as is technically practical. Specification, page 2, lines 32 to 37.

According to the present invention, the driver's stipulation may be taken into account if the driver wishes to remain at a standstill, for example, or would like to let the vehicle roll by releasing the brake pedal. However, brake application operations that are not technically feasible may be limited to a practical extent. Specification, page 3, lines 1 to 5. These measures may reduce loads in an advantageous manner, permitting design efficiency measures, such as, for example, a reduction in wall thickness of the hydraulic housing, a reduction in heat dissipation measures in the controller, a reduction or complete elimination of noise measures, and an adapted design of parts typically subject to wear. Specification, page 3, lines 7 to 12.

According to an example embodiment, if a determination is made that the vehicle is at a standstill (see Figure 2, step 152) these advantages may be obtained by limiting the braking force or brake pressure to a standstill limit value (PRADSOLLGRENZ) when the brake pressure derived from the driver's input (PRADSOLLFW) is greater than the standstill value limit. Specification, page 3, lines 14 to 15; Figure 2, step 156.

According to another example embodiment, pressure control on the wheels of a brake circuit may be performed by a single pressure regulator in an electrohydraulic brake system by using a controllable valve instead of controlling

the pressure on the individual wheels during certain driving situations. Specification, page 3, lines 17 to 21. If one of these operating situations prevails (see Figure 4, step 200), then the valve connecting the two pressure control circuits may no longer be actuated. Specification, page 13, lines 19-21; Figure 4, step 206. The valve opens so that the one pressure regulator (regulator i) may be deactivated (Figure 4, step 208), and according to step 210, control of both wheel brakes by the remaining pressure regulator (regulator j) may be performed in the manner described above. Specification, page 13, lines 21-25; Figure 4, step 210. In this manner, further pressure control circuits may then be deactivated which may lead to a reduction in the load on components, not only when the vehicle is standing still, but also during driving situations in which braking operations do not require individual wheel brake pressure control. Specification, page 3, lines 21 to 26.

According to another example embodiment, a maximum possible change in braking force or pressure is limited, which results in a reduction in load during driving operation as well as standstill operation. Specification, page 3, lines 28 to 30; Figure 2, steps 160, 166. During driving, this measure may be used for braking operations that do not require high braking force buildup dynamics such as, for example, slight pedal operations, low rates of change, and low driving speed. Specification, page 3, lines 31 to 34.

According to another example embodiment, large load reductions may be achieved by releasing the brakes for individual wheels completely at a standstill, at a low driving speed, and for a low desired braking force or change in braking force; the contributions of these brakes are compensated by the other wheels. Specification, page 3, line 36 to page 4, line 4.

According to another example embodiment, a build up of braking force is prevented in individual wheel brakes or in wheel brakes on one axle (e.g., rear wheels or front wheels) in such suitable braking situations. Specification, page 4, lines 4 to 7.

6. ISSUES

A. Whether claims 1, 3, 5, 7, 8 and 10 are anticipated by Schunck; and

B. Whether claims 1, 3, 5, 7, 8 and 10 are anticipated by Yano.

7. GROUPING OF CLAIMS

With respect to Issue A, claims 1, 3, 5, 7, 8 and 10 stand or fall together.

With respect to Issue B, claims 1, 3, 5, 6, 8 and 10 stand or fall together.

8. ARGUMENTS

A. Issue A; The Schunck reference does not anticipate the pending claims

Claims 1, 3, 5, 7, 8 and 10 stand finally rejected under 35 U.S.C. § 102(b) as anticipated by Schunck. Appellants respectfully submit that Schunck does not anticipate the present claims for the following reasons and respectfully submit that the present rejection should be reversed.

As regards the anticipation rejection of the claims, to reject a claim under 35 U.S.C. § 102, the Office must demonstrate that each and every claim feature is identically described or contained in a single prior art reference. (See Scripps Clinic & Research Foundation v. Genentech, Inc., 18 U.S.P.Q.2d 1001, 1010 (Fed. Cir. 1991)).

Furthermore, with regard to the claimed features, it is well established that "claims are not to be read in a vacuum, and limitations therein are to be interpreted in light of the specification in giving them their broadest reasonable interpretation." See In re Marosi, 710 F.2d 799 (Fed. Cir. 1983) (quoting In re Okuzawa, 537 F.2d 545, 548 (CCPA 1976)).

Independent claim 1 of the present invention relates to a method of controlling a wheel brake of a vehicle and recites, *inter alia*, the step of applying the at least one of the braking force and the braking pressure as a function of the desired braking input, wherein the applied at least one of the braking force and the braking pressure is limited to a maximal value when the vehicle is at a standstill.

The specification of the present invention sheds light on the meaning of this claim language where it clearly provides:

> If it was found in step 152 that the vehicle is at a standstill, then a check may be performed in next step 156 to determine whether setpoint PRADSOLLFW, derived from the driver's desired braking, is greater than a predefined limit value PRADSOLLGRENZ, which represents the standstill limit pressure. If this is not the case, the brake pressure may be set as part of pressure regulation as in normal operation according to step 154. If the setpoint derived from the driver's intent (input) is greater than the limit value, then according to step 158, setpoint PRADSOLL to be set is reduced to the limit value, starting from setpoint PRADSOLLFW derived on the basis of the driver's intent (input), following a predefined time function $\Delta 1(t)$.

(Specification, page 9, line 36 to page 10, line 11)(emphasis added). In light of one of the main objectives

of the present invention - to reduce unnecessary loading - this passage indicates that when an applied braking pressure (load) exceeds a limit value PRADSOLLGRENZ, that the pressure derived from the driver's intent is overridden in favor of a limit or maximal value to avoid application of forces that are greater than necessary to maintain the standstill condition of the vehicle.

The Schunck reference does not disclose this claimed feature. In contrast, the Schunck reference relates to a technique of reducing sudden changes in deceleration when coming to a standstill whereby a control system overrides a driver's braking commands and implements a progressive diminution in brake pressure so that the deceleration drops monotonously from an initial level to lower levels. See Schunck, col. 3, lines 28-35 (emphasis added). As can be discerned, the Schunck reference does not mention or refer to a limit or maximal pressure and also does not pertain to a standstill condition as such, but rather, pertains to smoothing out a transition from braking to standstill, i.e., the deceleration of the vehicle to zero velocity.

In the Advisory Action, the Examiner states that "the setpoint which is calculated independent of the brake pedal box in box 208 is the pressure limit." Schunck describes this procedure that the Examiner is referring to (box 208) as follows:

> If speed VREF is less than [a second speed threshold V0] this threshold, the individual setpoints for the wheels are determined in step 208 taking into account the modified braking force distribution BKVSS. The normal braking force distribution between the rear wheel brakes and front wheel brakes is changed in this case. This can also be accomplished by suitably selecting the time functions for the rear and front wheel brakes in step 200, which reduce the front wheel brake pressures

differently from the rear wheel brake pressures.

(Schunck, col. 3, line 66 to col. 4, line 8).

Whether or not the threshold condition VREF < V0 is equivalent for testing for a standstill condition as the Examiner alleges (see Final Office Action, paragraph 5) -- which is not admitted -- there remains no disclosure of a standstill limit pressure. Instead, Schunck merely indicates that "pressures are selected so that deceleration drops monotonously from the initial level to lower levels." Schunck, col. 3, lines 34-35. Thus, while the claimed invention seeks to limit an absolute pressure that can be applied during a standstill so as to avoid unnecessary loading, i.e., the pressure itself is the targeted variable, in Schunck, the pressure chosen is secondary since the rate of deceleration is the targeted variable.

For these reasons, it is not understood how the Examiner maintains that Schunck discloses limiting the applied braking force or braking pressure to a maximal value when the vehicle is at a standstill, as recited in claim 1.

As it is clear that Schunck does not identically disclose these features, it is submitted that Schunck does not anticipate claim 1 or claims 3, 5, 7 and 8, which depend from claim 1. Since independent claim 10 recites features analogous to those discussed above with respect to claim 1, it is submitted that claim 10 is also not anticipated by Schunck.

Reversal of the rejection of claims 1, 3, 5, 7, 8 and 10 under 35 U.S.C. § 102(b) based on the Schunck reference is, therefore, respectfully requested.

B. Issue B; The Yano reference does not anticipate the pending claims

Claims 1, 3, 5, 7, 8 and 10 stand finally rejected under 35 U.S.C. § 102(e) as anticipated by Yano. Appellants respectfully submit that Yano does not anticipate the present claims for the following reasons and respectfully submit that the present rejection should be reversed.

To reject a claim under 35 U.S.C. § 102, the Office must demonstrate that each and every claim feature is identically described or contained in a single prior art reference. (See Scripps Clinic & Research Foundation v. Genentech, Inc., 18 U.S.P.Q.2d 1001, 1010 (Fed. Cir. 1991)). Furthermore, with regard to the claimed features, it is well established that "claims are not to be read in a vacuum, and limitations therein are to be interpreted in light of the specification in giving them their broadest reasonable interpretation." See In re Marosi, 710 F.2d 799 (Fed. Cir. 1983) (quoting In re Okuzawa, 537 F.2d 545, 548 (CCPA 1976)).

As noted above, independent claim 1 relates to a method of controlling a wheel brake of a vehicle and recites, *inter alia*, the step of applying the at least one of the braking force and the braking pressure as a function of the desired braking input, wherein the applied at least one of the braking force and the braking pressure is limited to a maximal value when the vehicle is at a standstill.

Yano relates to a grade-holding brake system used for maintaining a brake pressure and a stopped condition after release of the brake pedal. See e.g., Yano, Abstract. Yano describes the details of an embodiment of this system in Figs. 9, 10, 11 and 12 and the accompanying text (col. 9, line 50 to col. 12, line 7). With respect to Fig 12, item 1207 refers to a "pressure decreasing

operation". As indicated in Fig. 12, this pressure decreasing operation is performed when a Ycntrl flag is set, an absolute value of a ZdP parameter is not less than an XdP parameter, and the ZdP parameter is not greater than zero. The accompanying text explains that step 1207 involves several sub-steps shown in Fig. 13C which include: holding a cut-off valve in a closed position for a predetermined period of time (thereby maintaining the pressure at the wheel brake cylinders for a predetermined period of time, since by having the cut-off valve closed, fluid cannot flow back away from the wheel brakes; opening the cut-off valve, closing the pressure booster valve; and turning the pressure booster pump off. See Yano, col. 11, lines 25-32. In this manner, Yano states, "it is possible to appropriately compensate for the pressure deviation [between the actual and target pressure levels]".

Yano describes in an immediately preceding passage a converse pressure <u>increasing</u> process used when the actual pressure is lower than the target pressure in which the cut-off valve is similarly held closed for a predetermined period of time, but then the pressure booster valve is opened and the pressure booster pump is turned on for a predetermined period of time. <u>Yano</u>, col. 11, lines 9-15. With respect to this latter process, it is stated that "if the predetermined periods of time for controlling the pressure booster valve and . . . pump are set at values corresponding to the pressure deviation ZdP, it is possible to appropriately compensate for the pressure deviation." Yano, col. 11, lines 16-20.

In the Advisory Action, the Examiner explains his reasoning as to why he believes that the Yano reference anticipates the claimed subject matter as follows:

> The Target value of Yano is an upper limit to the pressure applied. The pressure is being controlled as to not rise above that value and therefore, the

> target value can be construed as an upper limit. Furthermore, the argument that Yano teaches an adjustment method rather than a limit method is irrelevant . . .

(Advisory Action, paragraph 5).

It is submitted that the Examiner's analysis is incorrect, and in fact, takes an overbroad view that reads limitations completely out of the claims. The fact that Yano prescribes a target pressure, in general, does not mean that it discloses limiting an applied braking force or braking pressure to a maximal value when the vehicle is at a standstill, particularly when Yano describes an opposite procedure of "**increasing** the pressure within each wheel cylinder 6 when the brake pedal is depressed and when the vehicle is stopped, and the pressure within each wheel cylinder 6 is set at a sufficient level to keep the vehicle stopped." Yano, col. 11, lines 60-67. With regard to this process, Yano specifically states that if Zdp (the difference between a target wheel cylinder pressure and a current wheel cylinder pressure) is greater than zero, i.e., if the target pressure is higher than the current pressure, the pressure is increased to the target level. Yano, col. 11, lines 1-5.

Clearly then, the target pressure level does not function as a ceiling or upper limit pressure level as recited ("braking pressure is limited to a maximal value"), since if the current pressure is below this level, it is increased to the target level. A reasonable interpretation of the claim language "limited to a maximal value" is that this means that the pressure is limited to prevent it from going above this level.

In this regard, while it is understood that limitations are not imported into the claims from the specification of which they are a part, the clear guidance

within the specification of the present invention that "if [the brake pressure is not above the limit standstill level] the brake pressure may be set as part of pressure regulation as in normal operation according to step 154, [while] if the setpoint derived from the driver's intent (input) is greater than the limit value, then according to step 158, setpoint PRADSOLL to be set is reduced to the limit value," clarifies that the setting of the maximal level establishes a ceiling level rather than a target level. Therefore, it is submitted that the Examiner is incorrectly equating the "target level" of Yano with the "maximal level" as claimed, and that Yano does not anticipate the subject matter of claim 1.

As claims 3, 5, 7 and 8 depend from claim 1, they are equally not anticipated by Yano. Since independent claim 10 recites features analogous to those discussed above with respect to claim 1, it is submitted that claim 10 is also not anticipated by Yano.

Reversal of the rejection of claims 1, 3, 5, 7, 8 and 10 under 35 U.S.C. § 102(e) based on the Yano reference is, therefore, respectfully requested.

9. CONCLUSION

For at least the reasons indicated above, Appellants respectfully submit that the art of record does not disclose Appellants' invention as recited in the claims of the present application. Accordingly, it is respectfully submitted that the invention recited in the claims of the present application is new, non-obvious and useful.

Reversal of the Examiner's rejections of the claims is therefore respectfully requested.

Respectfully submitted,

Dated: 11 May 2004

By: _____

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APPENDIX

1. A method of controlling a wheel brake of a vehicle, an electrically operated actuator being assigned to the wheel brake and being drivable by an actuation signal as a function of a setpoint to generate at least one of a braking force and a braking pressure, the method comprising:

determining a desired braking input based on at least one of a brake pedal operation and at least one other control system; and

applying the at least one of the braking force and the braking pressure as a function of the desired braking input;

wherein the applied at least one of the braking force and the braking pressure is limited to a maximal value when the vehicle is at a standstill.

3. The method of claim 1, wherein at least one of the braking pressure and the braking force is limited to a predefined value when the vehicle is at a standstill.

5. The method of claim 1, further comprising increasing a limit value if the vehicle is detected going from a standstill to a rolling state.

7. The method of claim 1, wherein a valve connects a first and a second pressure control circuits, further comprising:

driving the valve in the at least one predefined operating situation to connect the first and the second pressure control circuits; and

regulating the pressure by one of the first and second pressure control circuits while another one of the first and the second pressure control circuits is at least one of deactivated and converted to a pressure holding mode.

8. The method of claim 1, wherein a limit value is based on at least one wheel brake not being braked.

10. A device for controlling a wheel brake, the device comprising:

a control unit to control at least one electrically operated actuator assigned to the wheel brake;

wherein:

the control unit is operable to control as a function of a desired braking derived from an operation of at least one of a brake pedal and at least one other control system, and converting at least one of a magnitude and a change of the operation into the actuation quantity; and

the control unit is operable to limit actuation of the at least one electrically operated actuator in at least one predefined operating situation, and the desired braking is limited to a maximal value in at least one of the magnitude of the desired braking and dynamics of the change of the desired braking;

wherein the at least one predefined operating situation includes the vehicle being at a standstill.